

Castilleja

The Newsletter
of the Wyoming
Native Plant Society

December 1996
Volume 15, No. 4

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Bebb willow (*Salix bebbiana*) is one of the more common willow species in the mountains and foothills of western and northeastern Wyoming. By willow standards, it is also one of the more easily recognizable species. Bebb willows typically are multi-branched shrubs or trees that often have a mushroom-like growth form. The older stems have cracked bark, giving them a characteristic white-streaked appearance. When in fruit, Bebb willow can be recognized by its fine-hairy, long-beaked capsules borne on long stalks. Illustration by W. Fertig.

WNPS NEWS

Scholarship: The Wyoming Native Plant Society is pleased to announce that the 1997 Student Botany Research Scholarship is once again available. One to two scholarships in the amounts of \$200-400 are available to any Junior College, undergraduate, or graduate student conducting a research project on the native flora of Wyoming. Projects may address any aspect of botany, including taxonomy, floristics, ecology, plant geography, range science, physiology, or mycology. The only stipulation is that the study must take place in Wyoming. Interested applicants are asked to provide a 1-2 page outline of their proposed project, including objectives, methods, and a brief discussion of the value of the project. The deadline for applications is 20 February 1997. Winners will be chosen by the WNPS Board in March, 1997.

1997 Annual Meeting/Field Trip: The 1997 annual meeting and field trip is scheduled for Saturday, July 26 and Sunday July 27. We plan to meet at the Ft. Laramie National Historic Site (between the town of Ft. Laramie and Wheatland) at 8:30 AM on Saturday. We also plan to tour BLM lands in the Torrington sand hills country and Guernsey State Park. Look for more details in the coming issues of *Castilleja*.

New Members: Please welcome the following new members of WNPS: Becky Bardoni (Victor, ID), Laura Gianakos (Laramie), Sharon Haines (Laramie), and Sandra Mitchell (Rock Springs).

Attention Readers: We are always looking for articles and illustrations for the newsletter. Items for the March issue are needed by 15 February 1996.

Treasurer's Report: Balance as of 20 December 1996: General Fund \$598.49; 1996-97 Student Scholarship Fund \$501.00; Total funds: 1099.49 WF

Wyoming Native Plant Society
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Contributors to this issue: John "Scrooge" Baxter, Sharon Eversman, Walter Fertig (WF), George Jones, Stuart Markow, C. L. Porter.

Botany Briefs

Botanical News from Wyoming and the Rocky Mountain Region

1997 Wyoming Rare Plant Workshop: The fourth Wyoming Interagency Rare Plant Information Workshop is scheduled for March 4-5, 1997 at the Holiday Inn in Riverton. The workshop is sponsored by the Wyoming Rare Plant Technical Committee (composed of representatives of the US Forest Service, Bureau of Land Management, National Park Service, US Fish and Wildlife Service, and the Wyoming Natural Diversity Database) and is open to anyone interested in the state's rare flora.

The workshop will consist of 3 main sections. The morning session on March 4 (starting at 8 AM) will feature a number of speakers discussing the national "Celebrating Wildflowers" effort, agency weed policies, rare plant survey techniques, and writing Biological Evaluations and Environmental Assessments. The afternoon session (starting at 1:10 PM) will feature a discussion of the ramifications of recent changes in the US Fish and Wildlife Service's policy on candidate species being considered for listing under the Endangered Species Act. The final morning session on March 5 will be a review of the status of plant species currently considered a high priority by the federal agencies (particularly the BLM and Forest Service). In this session people are asked to share their recent field discoveries and discuss management concerns.

For additional information on the conference, contact Walt Fertig (307) 745-5026.

Wildscapes Brochure Available: If you have questions about growing wildflowers and native plants, a new brochure should help. The pamphlet "Wildscapes and Wildflowers for Wyoming" offers tips on planting trees and shrubs adapted to Wyoming's harsh environments. The brochure is put out by Wildflowers for Wyoming, a nonprofit group initiated by former Wyoming first lady Jane Sullivan. Copies may be obtained from the Cheyenne Botanic Garden, 710 S. Lions Park Drive, Cheyenne, WY, 82301. A donation of \$1 is requested to cover handling and postage. WF

Forests Beneath Your Feet

By Sharon Eversman
Biology Dept. Montana State University

(Excerpt from *Kelsey*, the newsletter of the Montana Native Plant Society, Fall 1993).

An elementary school teacher once explained that on outdoor excursions she tells her classes of little ones to look at the plants and animals above their heads, everything between their heads and their knees, and things below their knees. This essay will concentrate on the world below the ankles, at least in terms of overall size of the organisms. This puts one in the realm of the special world of mosses and liverworts. True, all of these small vegetational components may also dwell on trees, rocks, cliffs, buildings, and statues above one's head, but size-wise, they are individually usually less than ankle height.

As we all vividly recall from beginning botany classes, mosses and liverworts (hepatics) are true plants, with chlorophylls *a* and *b*, and storage of excess sugars as starch. Unlike conifers and flowering plants, they have no vascular tissue (xylem and phloem) nor flowers, fruits, or seeds. The longest-lasting stage of their life history is the familiar small green form, with chromosomes not in pairs (haploid) and able to obtain water and inorganic nutrients only by osmosis or direct absorption from substrate or atmosphere. This last characteristic, similar to that of lichens, is what makes them very sensitive to air pollution and useful for monitoring air quality. Lack of vascular tissue for support and conduction, and probably the dominance of the haploid stage, keep the plants small.

Mosses and leafy liverworts can be easily distinguished from algae and lichens: mosses and leafy liverworts have central stems to which small leaves are attached. Algae are filamentous, with no little leaves; lichens come in various shapes and colors, but never with stems and little leaves. The most common liverwort, *Marchantia polymorpha*, however, is not leafy: it is a flat, porous liver-shaped thallus, that is most abundant in damp spots. After the fires in Yellowstone National Park, it was everywhere in the moister habitats. A "thallus" is the name given to plants like *Marchantia* and lichens that do not have the usual stem-leaf-root form.

In general, liverworts prefer more shade and moisture than mosses. They are frequently difficult to distinguish from mosses, but they tend to be flatter, with their leaves attached to the main stem in a different manner, and capsules not on top of tall stalks.

Mosses and liverworts are very good at reproducing asexually - they can regenerate from fragments, and many of them produce a multicellular structure of some kind (a gemma) that floats or blows away to produce the beginning of a new colony. Their sexual reproductive stage is more hidden, hence the name "cryptogam" for these groups of plants. Eggs are produced in an archegonium, sperm are produced in an antheridium; archegonia and antheridia can be on the same or on different plants. The sperm swims to the egg and after fertilization a brief diploid stage (chromosomes in pairs) produces unicellular haploid spores in capsules; each spore can grow into a new little liverwort or moss plant. Capsules are obvious in most mosses, less so in liverworts. Without capsules, identification of most mosses and liverwort species is very difficult. In some, capsules are rarely seen; in the more

helpful species, capsules are produced usually once a year either from the tip of the moss thallus or from a leaf axil.

It is very rare to observe any moss or liverwort that has been nibbled on by an herbivore. As crisp and delicate as their little leaves appear when they are wet, they are evidently not edible. Their taste is either negligible or rather bitter, indicating a chemical defense mechanism. They also crisp or twist up when dry, appearing not very palatable. However, bryologists have noticed missing capsules on many species, assuming that mice or voles use them as food. Documented observations of capsules being eaten are actually being solicited by bryologists.

Economically, mosses are more important than liverworts. *Sphagnum*, of course, is the major source of peat moss used by gardeners; it gives good pH and water-holding qualities to soil. *Sphagnum* has also been used as bandage and diaper material. Mosses, including *Sphagnum*, are anti-bacterial; they rarely mold or mildew and can inhibit bacterial growth in petri dishes. Other mosses, mostly the larger fern-type mosses like *Ptilium* or *Hylocomium*, are used for lining hanging baskets and for other decorative purposes. Ecologically, it is impressive in some wetter forests to observe the depth of moss cover; the moss carpet probably inhibits some seed germination but also is an important factor in regulating flow of water into and out of forest soils. Mosses in dry rangeland and some alpine locations form inconspicuous mats that help decrease wind erosion.

Mosses are instrumental in speeding rock weathering in soil formation. They expand and contract as they wet and dry, pulling up little pieces of rock from the substrate. They put down tiny root structures and break up soil, secrete carbon dioxide which combines with water to make carbonic acid that etches rock, and trap blowing soil. In Hawaii, it was estimated that rock with lichen and moss weathers 100 times faster than bare rock; in our climate, with freezing and thawing, the factor is probably much less, but feeling the soft rotten rock under lichen and moss pads is an indication of their weathering activities.

Mosses might be more popular if they had common names, but most of them do not. Identification of mosses requires microscope examination of the leaves, stem cells, and the capsules with spores. The vocabularies are completely different from those used in fern, gymnosperm, and angiosperm identification.

There are several very useful books for those wishing to branch into the world of cryptogams. *Forests of Lilliput: the Realm of Lichens and Mosses* by Dr. John Bland is a non-technical and informative book, easy and interesting to read. A handy picture guide for beginners is *Mosses, Lichens, and Ferns of Northwest North America* by Vitt, Marsh, and Bovey (although many Rocky Mountain species are not included). Conrad Redfearn's *How to Know the Mosses and Liverworts* is the starting point for moss enthusiasts.

One word of warning about getting involved with this small world; it can make trekking slow and backpacks heavy if one gets involved with observing and collecting. However, those of us who do not have to see flowers to get a plant high find that this miniature forest is available for the looking all year long.

Exploring the Plants of Rendezvous Mountain

By Stuart Markow

Visitors to Rendezvous Mountain in the southern Teton have long been captivated by the outstanding scenery and wealth of recreation resources that characterize the area. Each year, thousands of bold explorers challenge the slopes, carried upwards by foot, mountain bike, or aerial tram.

Over the summer of 1996, while hundreds were pursuing their own personalized adventures on the mountain, a general floristic and sensitive species survey was being undertaken before their own eyes. There was good reason for this project; the Jackson Hole Ski Corporation had announced plans for expanding its operation in the area, with activities including grading of slopes, road-building, installation of additional lifts, construction of restaurants, and even the removal of an entire ridge, all with the intention of providing skiers and other recreationists with an "improved" outdoor experience [Ed. note: see the May 1996 issue of *Castilleja* for more on the potential impacts of this project].

Such investigation could not have been more timely. Documentation of the plant species composition of Rendezvous Mountain has become increasingly urgent as development and recreational pursuits impose greater and greater impacts on the native vegetation. Moreover, studies by Hollis Marriott, Robert Dorn, Erwin Evert, and others indicate that the mountain harbors an unusual assortment of regional endemics and plant species of special concern. Examples include Payson's bladderpod (*Lesquerella paysonii*), Shultz's milkvetch (*Astragalus shultziorum*), and aromatic pussytoes (*Antennaria aromatica*). Additionally, the area provides what appears to be textbook habitat for Forest Service Sensitive species including sweet-flowered rock jasmine (*Androsace chamaejasme* var. *carinata*), naked-stemmed parrya (*Parrya nudicaulis*), and Weber's saw-wort (*Saussurea weberi*). These, however, have never been documented for the area.

Discussion concerning sensitive plant surveys for the development area actually began over the winter of 1995-96, when the Forest Service issued its preliminary Environmental Impact Statement, inviting public comment. This announcement generated a great deal of attention from the public, and many people voiced their concerns through letters to the Forest Service. It was clear that if the Service wanted public support for this project it was going to have to exert some control over the proposed development and demonstrate serious commitment to protection of the environment. Moreover, under the National Environmental Policy Act, all disruptive activity on federally managed lands must be assessed for potential threats to plant species listed as Endangered, Threatened, or Sensitive. It was time to get some people on the ground to see what was there.

With funding and logistical support provided by the Ski Corporation, the survey became a reality. It quickly became evident that the "one hundred and twentyfive species of plants" reported on the recording in the aerial tram was a gross underestimation (no one seems to know how this number was arrived at).

It was also apparent that there was a great diversity of habitats represented, ranging from alpine ridges, to coniferous forest, to mountain meadows. Some of these were in essentially natural condition; others were so disturbed and modified that they were overwhelmingly dominated by introduced grasses and forbs. Whether these will be able to revert back to native vegetation remains to be seen. The future

of these sites depends, to a large degree, on control of noxious weeds including musk thistle (*Carduus nutans*) and Canada thistle (*Cirsium arvense*).

As a result of the survey, 317 species of vascular plants were found to occur in the development area. Some of the more interesting findings include:

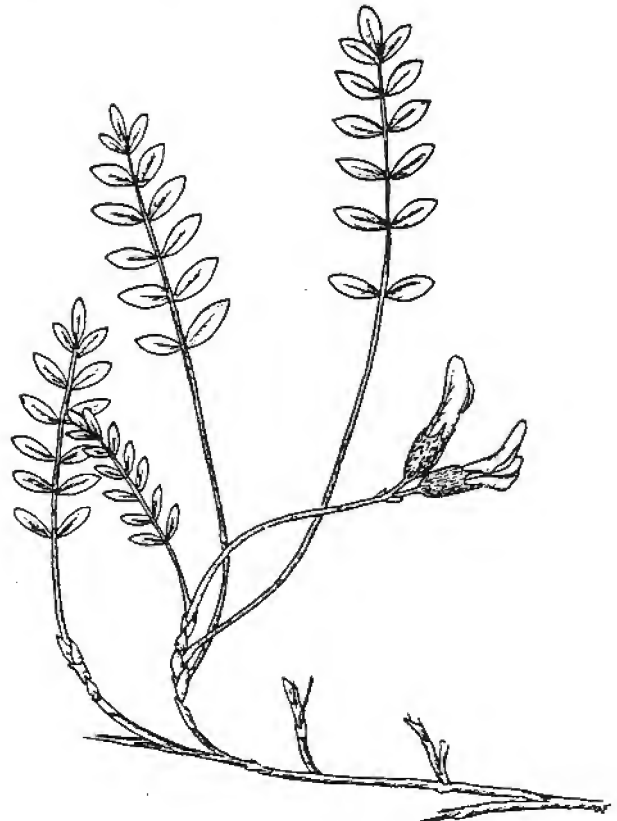
- * Three Forest Service Sensitive taxa: Payson's bladderpod (*Lesquerella paysonii*), rockcress draba (*Draba globosa*), and creeping twinpod (*Physaria integrifolia* var. *monticola*).

- * Three Wyoming Species of Special Concern: singlehead pussytoes (*Antennaria monocephala*), Columbia brome (*Bromus vulgaris*), and Scouler hawkweed (*Hieracium scouleri*).

- * Teton County records for bladder campion (*Silene vulgaris*) and birdsfoot-trefoil (*Lotus corniculatus*), both weedy, exotic species.

Four populations of Payson's bladderpod were discovered. One was well within an area where grading, construction of a bike path, and installation of utility lines was planned. The Ski Corporation obligingly modified its plans in order to avert disruption of the site.

Below: Shultz's milkvetch (*Astragalus shultziorum*), a Wyoming endemic of high elevation calcareous meadows and slopes, found near the tram on Rendezvous Mountain. Some authors (including Dorn in *Vascular Plants of Wyoming*) include this species with *A. molybdenus*, an alpine species of Montana and Colorado. Ill. by W. Fertig.



It should be noted that creeping twinpod has been dropped as a species of concern to the Wyoming Natural Diversity Database, and will likely be dropped as a Forest Service Sensitive species in the near future. Morphological features reported to distinguish this variety from var. *integrifolia* have not held up well, casting doubt on the validity of its taxonomic status. However, the species as a whole has a very limited distribution and specific habitat requirements, and may, in the future, again be listed, albeit under a different name.

A pleasant surprise was the discovery of single-head pussytoes, an unusual boreal disjunct which makes its way south along the higher elevations of the Rocky Mountains. Five locations had previously been documented for Wyoming, only one of which was anywhere near Rendezvous Mountain.

Most exciting of all, perhaps, was the realization that the high slopes were completely free of commercial livestock. With no danger of stepping in cow pies (or the equine equivalent), it was possible to focus attention on the blaze of wildflowers provided by healthy, unmolested tall forb communities. This undisturbed condition is becoming increasingly hard to come by in the mountain west, so indulging in the clean, natural state of native vegetation was a refreshing way to spend an afternoon.

Discovery of six taxa of concern and two species not previously known from the area illustrates how poorly the flora of Rendezvous Mountain has been documented in the past, and underscores the importance of follow-up floristic investigation. Additionally, these discoveries suggest that access and development should proceed with caution and restraint. The Tetons have a lot to offer to skiers, hikers, sight-seers, and naturalists, but maintenance of the unique mountain environment must be a primary consideration if the attractions existing today are to be preserved for future generations.

Parry's Primrose Our Largest Native Primrose

By C. L. Porter

Perhaps it was wanderlust, and perhaps it was the excitement following the discovery of gold in the Rockies that drew Dr. Charles Christopher Parry away from his practice as a physician in Davenport, Iowa, to explore the Colorado mountains. He had previously served as a member of the government surveying parties in Wisconsin, Iowa, and Minnesota (then known as the Northwest), and later along the Mexican boundary: so he was not unfamiliar with the rigors as well as the pleasures of life in unsettled areas. In any case, at his own expense he made the trip from Iowa to the headwaters of South Clear Creek and the mountains east of Middle Park, there to devote the summer to plant collecting and exploration.

His 1861 expedition resulted in a fairly large collection of pressed and dried plant specimens which were sent to Harvard for study by Dr. Asa Gray, the leading botanist of those times. Among Parry's specimens Dr. Gray discovered a hitherto unknown *Primula* which had been found on the highest peaks, and in honor of the intrepid collector he named it *Primula parryi* and published the name and description in the American Journal of Science in 1862.

Parry's primrose is now known to have a distribution throughout the high mountains from Montana to New Mexico, Nevada, and northern Arizona. It prefers moist situations, and is likely to be found at or above timberline where it often



P. Parryi Greene
as drawn by Dr. C. L. Porter

follows along rocky stream banks in company with saxifrages, sedges, and arctic willows. Flower stalks of thrifty plants may attain a height up to 16 inches, and the numerous erect and dark green leaves which form a basal tuft may sometimes become almost a foot long and more than two inches wide. The flowers, a deep pinkish-rose with a golden center when fresh, but turning inky-blue when dried, are in clusters of about a dozen or so, but they do not all open at the same time. Individual flowers will measure from a half inch to an inch across.

There seems to be some disagreement regarding the odor of the plants ... some finding it strong and foetid (as I do), while others contend that it is rather weak and not unpleasant! Some persons are even able to detect the presence of the plants in the vicinity by their characteristic odor before actually coming upon them.

I have no definite information regarding the cultural aspects of this plant, but it is certainly a very handsome species, and like most alpine plants it should lend itself to cultivation in rock gardens providing care is taken to give it sufficient moisture. It blooms over a fairly long period, in our mountains throughout most of July.

[C. L. Porter was formerly the curator of the Rocky Mountain Herbarium. This article originally appeared in the American Primrose Quarterly in 1953. Illustration of Parry's primrose by C.L. Porter].

Additions and Deletions to the Flora of Wyoming

By Walter Fertig

Our knowledge of the composition of the flora of Wyoming continues to change with each passing field season, as new species are discovered, old species are re-evaluated, and more of the state is covered with ever greater scrutiny. As a result, keys, manuals, floras, and checklists can become quickly outdated.

The following are just some of the new species reported for the state in the past several years that were not known when the last state-wide flora was published (Dorn's *Vascular Plants of Wyoming*, second edition in 1992). Several other species that were included in Dorn's book have since been shown to be falsely reported or are no longer taxonomically valid.

There are still many more species out there awaiting discovery in Wyoming. Readers of *Castilleja* are encouraged to submit their discoveries to the editor for future installments of this column.

Additions:

Large-flowered sandwort (*Minuartia macrantha*): in 1994, Dr. Ron Hartman, curator of the Rocky Mountain Herbarium (RM), discovered three populations of this species while conducting a general floristic survey in the alpine areas of the Gros Ventre Range for Bridger-Teton National Forest. Previously, this species was thought to be restricted to the mountains of central Colorado. Hartman, an expert on the pink family (Caryophyllaceae), re-examined specimens at the RM and located one other collection from the Wind River Range in Wyoming that had been misidentified as *Minuartia dawsonensis* (syn = *Arenaria stricta* var. *dawsonensis*). He also found one misidentified specimen from the Uinta Mountains of Utah, a first record for that state as well. As its name implies, large-flowered sandwort can have large petals that are often 1.5 times longer than the sepals. Small-flowered forms are also known to exist, however. The species can be recognized by its glabrous herbage, flowering stems over 5 cm tall, and its several-flowered inflorescence. The species will key out as *A. stricta* var. *dawsonensis* in Dorn's flora (see "Deletions" section below, however).

Waxleaf meadow-rue (*Thalictrum revolutum*): This species was first collected in Wyoming by Hollis Marriott in 1983, while conducting a general floristic survey of the Black Hills for her Master's thesis. It was originally determined as *T. dasycarpum*, a closely related species. The correct identity was determined by Marilyn Park of Pennsylvania State University in a recent revision of the genus. Waxleaf meadow-rue can be distinguished from *T. dasycarpum* by the presence of sparse, short glandular hairs on the otherwise glabrous underside of the leathery leaflets. Three populations of *T. revolutum* are presently known in the state, all restricted to the Black Hills (an additional report from the Worland area proved to be misidentified).

Scribner's needlegrass (*Stipa scribneri*): This Southern Rocky Mountains member of the grass family (Poaceae) was discovered on Pine Bluffs in Laramie County by the author in July 1995. This species has very narrow leaves, like *Stipa pinetorum*, but large lemmas and hairy leaf sheaths like *S. viridula*. Scribner's needlegrass can be found in Ponderosa pine-Rocky Mountain juniper savannas near the state rest area and nature preserve off Interstate 80 at Pine Bluffs.

Low braya (*Braya humilis*): This member of the mustard family (Brassicaceae) was discovered for the first time in Wyoming below the summit of Arrow Mountain in the NW Wind River Range (Fremont County) by the author in July 1996. Low braya is primarily an arctic species that is also found in disjunct, alpine locations in Beaverhead County, Montana, and central Colorado. This species can be recognized by its short, clustered stems, tiny white flowers, and slender fruits. It appears to be restricted to semi-barren exposures of whitish calcareous sandy-gravel.

Alpine arnica (*Arnica angustifolia* ssp. *tomentosa*): This extremely woolly, yellow-rayed member of the sunflower family (Asteraceae) was discovered at the same location as low braya in 1996. It is found in gravelly calcareous cushion plant communities with a variety of other uncommon alpine species, including *Saussurea weberi*, *Androsace chamaejasme*, *Aquilegia jonesii*, and *Lesquerella fremontii*. The Wyoming population is slightly disjunct from the next nearest occurrence in southwest Montana.

Below: Alpine arnica (*Arnica angustifolia* ssp. *tomentosa*). Ill. by W. Fertig.



Deletions:

Rock stitchwort (*Arenaria stricta* var. *dawsonensis* or *Minuartia dawsonensis*): This species was formerly thought to occur in the Absaroka, Bighorn, and Wind River ranges of Wyoming. Ron Hartman recently reviewed all of the Wyoming material of this species at the RM and determined that all were misidentified and actually belonged to *Minuartia macrantha* or glabrate forms of other taxa of *Minuartia* (*Arenaria*).

One-color willow (*Salix monochroma*): While revising his treatment of the *Salix eriocephala* complex, Robert Dorn reviewed existing specimens of *S. monochroma* from Wyoming and determined that they actually represented *S. boothii*, one of the more common species in the state. *S. monochroma* is still a good species, but is now known to be restricted to the Pacific Northwest.

Western buttercup (*Ranunculus occidentalis*): This species had been reported for Yellowstone National Park in Wyoming, based on specimens from Bechler and Yellowstone Lake. Examination of these specimens by Jennifer Whipple, Ron Hartman, and myself showed that the leaf and fruit characters fit *R. orthorhynchus* instead. Western buttercup is primarily restricted to California and Oregon.

Creeping twinpod (*Physaria integrifolia* var. *monticola*): Creeping twinpod was described as a new variety by Robert Lichvar in 1984, differing from var. *integrifolia* in leaf and inflorescence proportions and the branching of the root system. Var. *monticola* was thought to be restricted to the Overthrust Ranges in western Wyoming and adjacent Idaho and was listed as Sensitive by the US Forest Service. While conducting rare plant surveys in the Salt River Range in 1992, Hartman and I became suspicious about the differences between these two varieties. The leaf and inflorescence features did not seem to be consistent and the root characters seemed to be environmentally determined, rather than genetically fixed. Dr. Reed Rollins, the leading authority on the mustard family in North America, agreed, and did not include var. *monticola* in his 1993 taxonomic treatment of the family. Creeping twinpod has since been dropped as a candidate for federal listing under the Endangered Species Act and has been recommended for deletion from the Forest Service Sensitive list.

Deep Creek, a Botanical Treasure of the Sierra Madre

By Walter Fertig and George Jones

The Sierra Madre is one of the most intensively utilized mountain ranges in Wyoming. For years, the mountains have helped support mining and logging towns in the Saratoga Valley and Baggs areas. As a result, relatively few large areas remain with their native vegetation mostly intact. One of these areas is the upper Deep Creek watershed along the west side of the Continental Divide, just north of Singer Peak. Due to its relatively pristine character, this site has been identified as a potential research natural area (RNA) by the Medicine Bow National Forest.

RNAs are sites managed by federal land agencies in an undisturbed condition to provide reference areas for long-term studies of ecological processes and to protect representative examples of major vegetation types. In addition, RNAs may provide a refuge for Threatened, Endangered, or Sensitive plant and animal species. Deep Creek is one of over a dozen

areas currently being studied for possible RNA designation by Medicine Bow National Forest.

Deep Creek contains examples of eight major upland and riparian vegetation types within its 4600 acres. Most of the potential RNA is clothed in forests belonging to the lodgepole pine/grouse whortleberry community type. In most stands, lodgepole pine (*Pinus contorta*) is the dominant tree, with grouse whortleberry (*Vaccinium scoparium*) and elk sedge (*Carex geyeri*) the predominant understory species. Subalpine fir (*Abies lasiocarpa*) becomes more abundant in these woods at higher elevations. Engelmann spruce may replace lodgepole pine as the dominant species in valley bottoms, especially in moister areas.

One of the more interesting species to be found in the lodgepole pine forests is clustered lady's-slipper (*Cypripedium fasciculatum*). This member of the orchid family has short, densely hairy stems topped by a pair of broad, green leaves and a tightly clustered inflorescence of 2-4 greenish-brown to purplish flowers. Like other lady's-slippers, *C. fasciculatum* has a large, pouch-like lip petal (the "slipper") that is dull yellow with purple mottling. Clustered lady's slipper has a wide range in western North America but is considered rare just about everywhere, including the Medicine Bow National Forest where it is listed as Sensitive. In the Deep Creek area it is known from 2 small populations totaling 1500-2200 individuals. These plants can be found on gently sloping terraces above the riparian channel of Deep Creek and its tributary, Douglas Creek, in sparse to densely vegetated communities with little sedge or grass cover.

Quaking aspen is an important forest species on many of the southeast facing slopes in the watershed. These aspen woods typically contain an understory of elk sedge or blue wildrye (*Elymus glaucus*), and a rich assortment of colorful forbs, including leafy-bract aster (*Aster foliaceus*), sticky geranium (*Geranium viscosissimum*), silvery lupine (*Lupinus argenteus*), sweet-cicely (*Osmorhiza chilensis*), ragwort (*Senecio* spp.), and meadow-rue (*Thalictrum fendleri*).

Ridgetops and south-facing slopes support vegetation dominated by mountain big sagebrush (*Artemisia tridentata* var. *vaseyana*) and bunchgrasses, including Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Elymus spicatus*) and Nelson's needlegrass (*Stipa nelsonii*). Other shrub species, including Wyoming big sagebrush (*A. tridentata* var. *wyomingensis*), three-tip sagebrush (*A. tripartita* var. *rupicola*), and snowbrush ceanothus (*Ceanothus velutinus*) may be locally abundant, especially on sites with deeper soils.

Scattered among the sagebrush grasslands are pockets of bare gravel and exposures of bluish-red schist that support cushion plant communities. These sites are also home to Rydberg's twinpod (*Physaria vitulifera*), a regional endemic of central Colorado and the Sierra Madre and Medicine Bow Range of Wyoming. This member of the mustard family can be recognized by its inflated, 2-parted balloon-like fruit pods and its silvery-hairy foliage.

The narrow riparian corridor of Deep Creek and its tributaries are mostly covered by forests of thinleaf alder (*Alnus incana*) or Englemann spruce and a variety of moisture-loving forbs, grasses, and sedges. These stream reaches are important habitat for nearly pure stocks of the Colorado River cutthroat trout, another Sensitive species.

The decision on whether to create a Deep Creek RNA has not yet been made. Anyone interested in protecting important areas like Deep Creek is encouraged to contact the Medicine Bow National Forest for more information on this and other potential RNAs.

The Botany Songbook All I Want for Christmas is a Pickup Truck*

By John "Scrooge" Baxter

(* Tune: All I want for Christmas are my two front teeth. About 5 decades ago this was a big hit for Spike Jones and his City Slickers. It was recently revived by the band Rusted Root)

All I want for Christmas is a pickup truck,
A pickup truck,
A pickup truck,
All I want for Christmas is a pickup truck,
With two big doggies and a gun rack.

I will fill my pickup with some rusted plants,
Covered with aphids and a lot of ants,
I will fill my pickup with some rusted plants
That I've collected with a gunny sack.

My wife sure hates salt grass rust,
She'll say "What? Some more *Distichlis*?
(I don't study that rust in bed,
that salt grass would tickle us).

I will drive from Torrington to Scotts Bluff,
Yes, even if the road is rough,
Collect some *Anemopsis* with my pickup truck
With 2 big doggies and a gun rack.

The Wyoming Native Plant Society, established in 1981, is a non-profit organization dedicated to encouraging the appreciation and conservation of the native flora and plant communities of Wyoming. The Society promotes education and research on native plants of the state through its newsletter, field trips, and annual student scholarship award. Membership is open to individuals, families, or organizations with an interest in Wyoming's flora. Members receive *Castilleja*, the Society's quarterly newsletter, and may take part in all of the Society's programs and projects, including the annual meeting/field trip held each summer. Dues are \$5 annually.

To join the Wyoming Native Plant Society, return the membership form below to:

Wyoming Native Plant Society
1604 Grand Ave.
Laramie, WY 82070

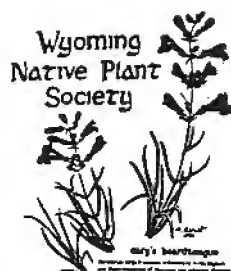
Wyoming Native Plant Society

Name: _____

Address: _____

___ \$5.00 Regular Membership

___ \$15.00 Scholarship Supporting Member
(*\$10.00 goes to the annual scholarship fund*)



WYOMING NATIVE
PLANT SOCIETY
1604 Grand Avenue
Laramie, WY 82070